Remarks

In the present response, claims 1-20 are presented for examination.

Claim Rejections: 35 USC § 103(a)

Claims 1-20 are rejected under 35 USC § 103(a) as being unpatentable over USPN 7,136,353 (Ha) in view of USPN 6,424,624 (Galand). These rejections are traversed.

Claims 1-20 recite one or more elements that are not taught or suggested in Ha in view of Galand. These missing elements show that the differences between the combined teachings in the art and the recitations in the claims are great. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

As a precursor to the arguments, Applicants provide an overview of the claims and the primary references (Ha and Galand). This overview will assist in determining the scope and content of the prior art as required in Graham (see *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 setting out an objective analysis for applying 103 rejections).

Network congestion arises when data packets sent or injected into a network exceed the capacity of the network. Generally, two ways exist to control network congestion. A first way (called window limit) limits the number of packets that can be concurrently in transit from a source node to a destination node. In other words, the window limit controls the number of packets that are in transit to the destination node (i.e., controls size of window). A second way (called rate limit) limits the rate at which the source node injects packets into the network. In other words, the rate limit controls the time interval between packets injected into the network.

Ha teaches a congestion control mechanism that controls network congestion. Specifically, the congestion control mechanism in Ha adjusts the size of a congestion window to limit the number of packets that can be concurrently in transmit from one node to another node. Ha adjusts the size of this window to control congestion.

Galand teaches a method for performing congestion detection and flow control operations for data traffic. The method monitors data flow in transit nodes and sets a Congestion Indication (CI) bit in a header of a data packet when congestion is detected.

Galand teaches an additive increase and a multiplicative decrease of the considered sending rate upon indication of congestion (see Galand at column 8, lines 17-21).

The claims recite various recitations that are not taught in Ha in view of Galand. Some examples are provided below with respect to independent claim 1.

As one example, claim 1 recites receiving congestion feedback data from acknowledgement packets transmitted in a network. The claim then recites using the acknowledgement packets to determine which of a window limit and a rate limit are causing congestion in the network. Ha in view of Galand does not teach or suggest these claim elements.

Galand does not even mention the use of acknowledgments. Ha mentions acknowledgments, but never suggest that such acknowledgments are used to determine which of a window limit and a rate limit are causing congestion in the network. By contrast, Ha appears to teach away from the recitations of claim 1. Ha teaches that receipt of acknowledgements can actually cause errors in determining bandwidth:

> The receipt of a large group of acknowledgement signals may cause the congestion control mechanism to significantly increase the size of the congestion window associated with that connection based on the erroneous assumption that the downlink channel has additional available bandwidth. As a result of this increase, the flow control mechanism the flow control mechanism will transmit a large burst of data packets over that particular connection, which may congest the entire downlink channel and interfere with the other connections to the same host. (See Ha column 7, lines 10-18).

Galand does not use acknowledgements to determine congestion in the network. Instead, Galand monitors the transfer node path:

> According to this invention, the packets flows are monitored throughout the forward path, in each intermediate transfer node on the path. As soon as traffic congestion is detected in one of the nodes, a predefined header

field is marked or set to indicate congestion has been detected. When a congestion indication is detected in exit node 24, each packet in the return path 27 is marked further congestion. (See Galand at column 6, lines 45-51).

Thus, the combination of Ha in view of Galand fails to teach or even suggest using the acknowledgement packets to determine which of a window limit and a rate limit are causing congestion in the network.

The differences between the claims and the teachings in the art are great since the references fail to teach or suggest all of the claim elements. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

As another example, claim 1 recites receiving congestion feedback data relating to a network and then adjusting both a window limit and a rate limit based on the congestion feedback data. Ha in view of Galand fails to teach or even suggest this element.

Ha teaches TCP architecture having a congestion control mechanism. The congestion control mechanism "increases the size of the congestion window for a particular connection, this increase causes the flow control mechanism to immediately transmit additional data packets over that connection" (see Ha at column 6, lines 54-59). Thus, Ha teaches only adjusting the window limit, not adjusting both the window limit and rate limit. Ha does not even discuss rate limit.

Galand teaches an additive increase and a multiplicative decrease of the considered sending rate upon indication of congestion (see Galand at column 8, lines 17-21). Galand does not teach or suggest a window limit.

The combination of Ha and Galand teaches adjusting either the window limit or the rate limit. Nowhere does the combination of references teach or suggest adjusting both a window limit and a rate limit based on the congestion feedback data. Making an adjustment of both of these limits is never suggested in Ha in view of Galand.

The differences between the claims and the teachings in the art are great since the references fail to teach or suggest all of the claim elements. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

As yet another example, claim 1 recites injecting data packets into the network according to both the window limit and the rate limit. Ha never discusses a rate limit. Again, Ha only discusses changing the window limit. Galand only discusses rate. The combination teaches either the window limit or the rate limit, but not injecting packets according to both the window and rate limits.

The differences between the claims and the teachings in the art are great since the references fail to teach or suggest all of the claim elements. As such, the pending claims are not a predictable variation of the art to one of ordinary skill in the art.

CONCLUSION

In view of the above, Applicants believe that all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. 832-236-5529. In addition, all correspondence should continue to be directed to the following address:

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